

Appl. No. 10/660,715
Amendment dated: April 30, 2009
Reply to OA of: January 26, 2009

REMARKS

Applicants have amended the claims to more particularly define the invention taking into consideration the outstanding Official Action. Applicants have amended claim 1. Nonelected claims 10-12 have previously been cancelled from the present application as these have been made the subject of a divisional application 11/907,548. Applicants submit that the claims now present in the application are fully supported by the specification as originally filed. No new matter is introduced.

Specifically, support for amendments to claim 1 can be found at Figure 1, Specification pages 8-9 and claim 3 as originally filed.

The Examiner's rejection of claim 1 as indefinite has been addressed by the present amendments to claim 1. Applicants request that the Examiner's rejection of claim 1 as indefinite should be withdrawn.

Applicants most respectfully submit that all of the claims now present in the application are in full compliance with 35 USC 112 and are clearly patentable over the references of record.

The rejection of claims 1-4 and 8 under 35 USC §103(a) as being unpatentable over Trueet in view of Hecker and further in view of Coleman has been carefully considered but is most respectfully traversed in view of the amendments to the claims and the following comments.

The combination of Trueet, Hecker and Coleman does not render the claimed invention *prima facie* obvious because the combination does not teach or suggest all of the claim limitations.

Specifically, the combination of Trueet, Hecker and Coleman fails to teach or suggest the claimed individually configured heating evaporation device, condensation device, vapor channel incubating device and product incubating device. The

combination further fails to teach or suggest the design of the vapor channel or vapor channel incubating device.

By way of introduction, and in reference to Applicants' Figure 1, the claimed invention requires the individually configured heating evaporation device (3), condensation device (5), vapor channel incubating device (6) and product incubating device (7). The claimed invention is advantageous because of its excellent and precise control of temperature with each step during the sublimation and purification process, which could increase the purity of the end products.

In rejecting claim 1, the Examiner states that Trueet, "discloses a vertical sublimation apparatus, comprising: a sublimation channel body (Trueet, Figure 4, 2); a heating evaporation device surrounding an evaporation pipe to control heating temperatures according to different materials (Trueet, Figure 4, 3); a condensation device surrounding the upper part of said sublimation channel body (Trueet, Figure 4, 3); and an incubating device for maintaining the temperatures of both the vapor channel and end products (Trueet, Figure 4, 3 and 6)(Office Action at page 3)."

In other words, according to the Examiner, Trueet's metal sleeve 3 is the heating evaporation device and the condensation device and the incubating device.

However, this is very different from the claimed invention (and thus does not render the claimed invention obvious) because in the claimed invention, the heating evaporation device and the condensation device and the incubating device are individual elements.

Most clearly, **the "heating evaporation device", "condensation device" and "incubating device" shown in Trueet is only a metal sleeve having two slits which permits the generation of a thermal gradient across the sublime vessel (Col. 3, Lines 25-35). Trueet's metal sleeve does not serve as the individually configured heating evaporation device, condensation device or incubating device (including vapor channel incubating device and product incubating device) of the claimed invention. Stated differently, the apparatus of Trueet does not comprise individually configured**

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vapor channel, condensation device, vapor channel incubating device, or product incubating device.

The Examiner recognizes that Trueet fails to disclose "a material rack comprised of a plurality of rails and fixed rings ... or said heating evaporation device, said condensation device, and said incubating device being individually configured (Office Action at page 4)."

The Examiner then turns to Hecker and Coleman to remedy the deficiencies of Trueet.

The Examiner's only rationale for Hecker is that of, "it would have been obvious to one of ordinary skill in the art to modify the apparatus taught by Trueet with the material rack taught by Hecker in order to obtain an apparatus suitable for producing highly pure products (Office Action at page 4)."

Hecker discloses a sublimation apparatus, comprising "...a charge boat removably supported within..." (column 6, lines 33 to 44). More specifically, the apparatus of Hecker does not comprise a vapor channel, vapor channel incubating device, or product incubating device. As shown in Hecker Figure 1, the apparatus only has a sublimation channel body (vaporizing chamber 8), a material rack (charge boat 9) a heating evaporation device (heating elements 3), a condensation device (condenser structure 11).

Hecker does not remedy the deficiencies of Trueet.

The Examiner then turns to Coleman and concludes, "it would have been obvious to one of ordinary skill in the art to try to modify the apparatus of the aforementioned applied art with the individual configuration taught by Coleman because one of ordinary skill in the art could have pursued the known potential configuration options for maximizing process efficiency and control within his or her technical grasp with a reasonable expectation of success (Office Action at page 4)."

Coleman teaches a silicon carbide sublimation system and associated methods. In Coleman, an electric arc is used to sublime a portion of a silicon carbide source material.

The Examiner generally points to paragraphs [0022] and [0025] of Coleman.

In Coleman, a silicon carbide seed crystal is introduced into a sublimation system along with first and second electrodes that are separated by a gap. A power supply is coupled to at least one of the electrodes and used to create an electric arc across the gap between the two electrodes. The electric arc is used to sublime at least a portion of a silicon carbide source material. The vaporized silicon carbide may then be encouraged to condense onto a seed material to produce silicon carbide [0005]. Coleman, is therefore very different from the claimed invention and therefore **does not**, in combination with Trueet and Hacker, render the claimed invention *prima facie* obvious.

Furthermore, the Examiner's obvious-to-try rationale is most respectfully traversed.

Trueet discloses a device **for the separation of mixtures of solids and high boiling liquids**, comprising "a tubular vessel having a closed and an open end; evacuating means sealing the open end; the closed end adapted to receive a mixture of at least two solids or high boiling liquids; means for heating the vessel to provide a thermal gradient along the length of the vessel or container and to cause the sublimation of the mixture; means to monitor the sublimation of the mixture by visual or optical means adapted to receive and translate the spectrum radiated from the sublimed materials along the length of the heated vessel or by physical means adapted to receive and retain the sublimed materials along the length of the heated vessel" (column 2, lines 45 to 57).

Hacker discloses a **horizontal sublimation apparatus** for the treatment of **uranium compounds** (column 1, lines 15-22).

Coleman discloses as noted discloses a **production for silicon carbide**.

Because of the differences in materials to be sublimed and the different structures involved in the combination of references, Applicants most respectfully submit that one of ordinary skill in the art would **not** have "pursued the known potential configuration options for maximizing process efficiency and control within his or her

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technical grasp with a reasonable expectation of success.”

Furthermore, Applicants note that Hacker is directed to a **horizontal** sublimation apparatus. The claimed invention is directed to a **vertical** sublimation apparatus.

The Examiner issued a Requirement for Restriction among five groups of inventions on September 17, 2007. Invention I related to a vertical sublimation apparatus and Invention II related to a horizontal sublimation apparatus. In the Requirement for Restriction, the Examiner indicated that the inventions (I, II, and III) “do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants (Requirement for Restriction page 3).”

At least in view of the above, given that a vertical sublimation apparatus and horizontal sublimation apparatus do not encompass overlapping subject matter, according to the Examiner, one of ordinary skill in the art would **not** have pursued configuration options from a vertical and a horizontal sublimation apparatus with a reasonable expectation of success to arrive at the claimed invention because they are not obvious variants.

The Examiner’s rejections of claims 1-4 and 8 should be withdrawn for all of the above reasons.

The rejection of claims 5-7 under 35 USC §103(a) as being unpatentable over Trueet in view of Hacker in view of Coleman as applied to claim 1 above and further in view of Hogan has been carefully considered but is most respectfully traversed in view of the amendments to the claims and the following comments.

As noted, the combination of Trueet, Hacker and Coleman does not render the claimed invention *prima face* obvious.

Hogan discloses an apparatus for desorbtion that utilizes enhancements to lessen the amount of entrained particles formed during desorbtion and for lowering the operating and capital costs associated with desorbtion equipment, having a plunger for cleaning the scrubber suction chamber. “The plunger’s outer surface may selectively have various configurations, such as saw teeth...” (Hogan, 0021)

However, with regard to the reasons for claim 1 (and claims 2-3 and 8) as mentioned above, claims 5-7 are also patent able over Trueet in view of Hacker and Coleman and further in view of Hogan.

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Accordingly, it is most respectfully requested that this rejection be withdrawn.

The rejection of claim 9 under 35 USC §103(a) as being unpatentable over Trueet in view of Hacker in view of Coleman as applied to claim 1 above and further in view of Saddhu has been carefully considered but is most respectfully traversed in view of the amendments to the claims and the following comments.

Saddhu discloses an apparatus for subliming solid precursors, having "a gasket (or o-ring) seals the connection..." (column 4, lines 61 to 63).

However, with regard to the reasons for claim 1 (and claims 2-3 and 8) mentioned above, claim 9 is also patent able over Trueet in view of Hacker and Coleman and further in view of Saddhu.

In sum, the claimed invention achieves **individually configured** heating evaporation device, condensation device, vapor channel incubating device and product incubating device. None of the Examiner's cited references, singly or in combination, disclose the above described feature of the claimed invention, especially the design of the vapor channel or vapor channel incubating device. The claimed invention achieves the advantages of excellent and precise control of temperature with each step during the sublimation and purification process, which could increase the purity of the end products.

Such advantages are not achieved by the Examiner's combination of references.

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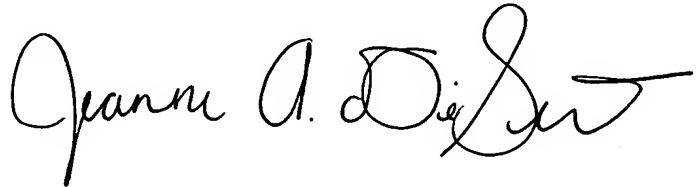
In view of the above comments and further amendments to the claims, favorable reconsideration and allowance of all the claims now present in the application are most respectfully requested.

If any issues remain that may be resolved by a telephone or facsimile communication with the Applicant's attorney, the Examiner is invited to contact the undersigned at the numbers shown below.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jeanne A. Di Grazio". The signature is fluid and cursive, with a long horizontal stroke at the end.

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